IN THE CLAIMS

Please replace all prior versions and claim listings with the following claim listing:

Claim Listing:

1. (original) A method for detecting functional areas in retinal images comprising:
illuminating a hemifield of the retina using a stimulating wavelength;
illuminating the entire retina at a non-stimulating wavelength;
simultaneously recording the resultant reflectance of the stimulated hemifield of the retina and the non stimulated hemifield of the retina in the non-stimulating wavelength region; and
determining functional areas of the retina based upon reflectance differences in the stimulated and non-stimulated hemifields in the non-stimulating wavelength.

2. (original) The method for detecting functional areas in retinal images of claim 1 wherein illuminating the hemifield of the retina using a stimulating wavelength comprises illuminating the hemifield of the retina at about 530nm.

3. (original) The method for detecting functional areas in retinal images of claim 1 wherein illuminating the entire retina at a non-stimulating wavelength comprises illuminating the entire retina in the near infrared region of the spectrum.

4. (original) The method for detecting functional areas in retinal images of claim 1 wherein illuminating the entire retina at a non-stimulating wavelength comprises illuminating the entire retina at about 700nm.

5. (original) The method for detecting functional areas in retinal images of claim 1 wherein determining functional areas of the retina based upon reflectance differences in the stimulated and non-stimulated hemifields in the non-stimulating wavelength comprises repeating the method to obtain multiple images of the same eye and applying principal components analysis to the resulting reflectance differences to determine functional areas of the retina.

6. (original) The method for detecting functional areas of retinal images of claim 1 wherein determining functional areas of the retina based upon reflectance differences in the stimulated and non-stimulated hemifields in the non-stimulating wavelength comprises repeating the method to obtain multiple images of the same eye and applying a fast-ICA algorithm to the resulting images to determine functional areas of the retina.

7. (original) The method for detecting functional areas of retinal images of claim 1 wherein determining functional areas of the retina based upon reflectance differences in the stimulated and non-stimulated hemifields in the non-stimulating wavelength comprises repeating the method to obtain multiple images of the same eye and applying an extended spatial decorrelation algorithm to the resulting images to determine functional areas of the retina.

8. (original) The method for detecting functional areas of retinal images of claim 1 wherein illuminating a hemifield of the retina using a stimulating wavelength comprises illuminating the hemifield with a variable pattern in the stimulating wavelength.

9. (original) The method for detecting functional areas of retinal images of claim 1 wherein illuminating a hemifield of the retina using a stimulating wavelength comprises illuminating the hemifield for variable lengths of time in the stimulating wavelength.

10. (original) The method for detecting functional areas of retinal images of claim 1 wherein illuminating a hemifield of the retina using a stimulating wavelength comprises illuminating a superior hemifield of a retina.

11. (original) The method for detecting functional areas of retinal images of claim 1 wherein illuminating a hemifield of the retina using a stimulating wavelength comprises illuminating an inferior hemifield of a retina.

12-16. (cancel)

17. (original) A method for determining retinal hemoglobin saturation before and after stimulation comprising:
illuminating a hemifield of the retina using a stimulating wavelength;
illuminating the entire retina at a non-stimulating wavelength;
simultaneously recording the resultant reflectance of the stimulated hemifield of the retina and the non stimulated hemifield of the retina in the non-stimulating wavelength region; and

determining retinal hemoglobin saturation based upon reflectance differences in the stimulated and non-stimulated hemifields in the non-stimulating wavelength.

18. (original) The method for determining retinal hemoglobin saturation before and after stimulation according to claim 17 wherein:

illuminating the hemifield of the retina using a stimulating wavelength comprises illuminating the hemifield of the retina at about 530nm.

19. (original) The method for determining retinal hemoglobin saturation before and after stimulation of claim 17 wherein illuminating the entire retina at a non-stimulating wavelength comprises illuminating the entire retina in the near infrared region of the spectrum.

20. (original) The method for determining retinal hemoglobin saturation before and after stimulation of claim 17 wherein illuminating the entire retina at a non-stimulating wavelength comprises illuminating the entire retina at about 700nm.

2~~2~~1. (currently amended) The method for determining retinal hemoglobin saturation before and after stimulation of claim 17 wherein:

determining functional areas of the retina based upon reflectance differences in the stimulated and non-stimulated hemifields in the non-stimulating wavelength comprises repeating the method to obtain multiple images of the same eye; and applying principal components analysis to the resulting reflectance differences to determine functional areas of the retina.

232. (currently amended) The method for determining retinal hemoglobin saturation before and after stimulation of claim 17 wherein determining functional areas of the retina based upon reflectance differences in the stimulated and non-stimulated hemifields in the non-stimulating wavelength comprises repeating the method to obtain multiple images of the same eye and applying a fast-ICA algorithm to the resulting images to determine functional areas of the retina

243. (currently amended) The method for determining retinal hemoglobin saturation before and after stimulation of claim 17 wherein determining retinal hemoglobin saturation based upon reflectance differences in the stimulated and non-stimulated hemifields in the non-stimulating wavelength comprises repeating the method to obtain multiple images of the same eye and applying an extended spatial decorrelation algorithm to the resulting images to determine hemoglobin saturation.

254. (currently amended) The method for determining retinal hemoglobin saturation before and after stimulation of claim 17 wherein illuminating a hemifield of the retina using a stimulating wavelength comprises illuminating the hemifield with a variable pattern in the stimulating wavelength.

265. (currently amended) The method for determining retinal hemoglobin saturation before and after stimulation of claim 17 wherein illuminating a hemifield of the retina using a stimulating wavelength comprises illuminating the hemifield for variable lengths of time in the stimulating wavelength.

27-31. (cancel)